

K6YQT

PAARA NEWSLETTER  
VOLUME 52 NUMBER 11, November 2003

W6OTX



# PAARAgraphs

Celebrating 66 years as an active ham radio club—Since 1937  
Newsletter for the Palo Alto Amateur Radio Association, Inc.



## CALENDAR

- November....7 **PAARA Meeting, 7:30**  
Menlo Park Recreation Center  
700 Alma Street, Menlo Park
- November..12 **PAARA Board Meeting, 7:30**  
Red Cross Bld., 400 Mitchell Ln., Palo Alto
- December....5 **PAARA Meeting, 7:30**
- December...10 **PAARA Board Meeting, 7:30**
- January.....? **PAARA Meeting, 7:30**
- January.....? **PAARA Board Meeting, 7:30**

The ARRL has a code practice:

URL <http://www.pcpractice.com/CW/>

-Don KF6JMQ



## PROGRAM

November 7, 2003 7:30 P.M

Speaker:

Lars Karlsson AA6IW

**24 GHz EME**  
**(Earth-Moon-Earth) Moon Bounce**

Join us for pre-meeting eyeball  
at Su Hong Restaurant, 1039 El Camino Real, Menlo Park  
Food will be served at 6:00 sharp, so guests will be on time for the PAARA  
meeting. Those arriving late will be responsible for their own order and bill.

—PAARA Radio NET every Monday evening at 8:30 P.M., local time—  
on the 145.230 -600 MHz repeater, PL tone off



Lars Karlsson AA6IW

**November 7<sup>th</sup> Program:**  
**24 GHz EME (Earth-Moon-Earth)**  
**Moon Bounce**

Lars Karlsson AA6IW, 24 GHz EME World Record Holder, will talk about the construction of EME stations and the equipment used for the 24 GHz World Distance Record. Learn what it's like to be in an EME QSO, and what obstacles new enthusiasts encounter.

**Attention Members / Advance Notice:**  
Get your "show and tell projects" ready for the **December**  
**5<sup>th</sup> PAARA meeting**

~Jim, K6AK

## Miscellaneous

### ELECTRONIC FLEA MARKET @ Foothill College

Second Saturday of month, March -October, 6 AM-2PM  
 Perham Foundation Sponsorship has discontinued.  
 The Flea Market will continue under a new sponsor.

### PAARA Palo Alto Amateur Radio Association

meets 1st Friday 7:30 each month, Net 145.230 each Monday 8:30,  
 contact: Andreas Junge N6NU.....(650) 233 0843

### FARS Foothills Amateur Radio Society

meets 4th Friday 7:30 each month,  
 contact: <http://www.fars.k5ya.org>.

### NCDXC Northern California DX Club

meets 2nd Friday 7:30 each month,  
 repeater for member info 147.360, Thur 8:00PM,  
 contact: Mike Gavin W6WZ, (650) 851 8699.

### NorCalQRP Northern California QRP Club

meets 1st Sunday each month,  
 contact: Jim Cates 3241 Eastwood Rd., Sacramento, CA 95821.

### SPECS Southern Peninsula Emergency Communication System

meets each Monday 8:00PM on Net 145.27, 440.80 MHz, [www.specsnet.org](http://www.specsnet.org)  
 contact: Tom Cascone, KF6LWZ, 650-688-0441 [specs@svpal.org](mailto:specs@svpal.org)

### SCARES South County Amateur Radio Emergency Service

meets 3rd Thursday 7:30 each month, San Carlos City Hall.  
 Net is on 146.445 [PL 114.8] & 444.50 (PL -100) 7:30 Monday evenings.  
 contact:

### SCCARRA Santa Clara County Amateur Radio Association

Operates W6UU & W6UU/R, repeater 146.385+(pl 114.8)  
 Nets: 2m, 7:30 Mon; 70cm, 442.425+ (pl 107.2) Thur.  
 Web site [www.qsl.net/sccarra](http://www.qsl.net/sccarra)  
 meets 2nd Mon each month @ 7:30 PM.  
 contact: Clark Murphy KE6KXO 408-262-9334  
 ARRL/VEC license testing contact 408-243-8349

### SVECS Silicon Valley Emergency Communications

Operates WB6ADZ repeater (146.115 MHz+)  
 contact: Lou Stierer WA6QYS 408 241 7999

### WVARA West Valley Amateur Radio Association

operates W6PIY repeater 147.39+, 223.96, 441.875, 1286.2  
 meets 3rd Wed every month.

contact: Glen Lokke Jr. KE6NBO at 408 971 8626, or [glokke@pacbell.net](mailto:glokke@pacbell.net)

### Perham Foundation (discontinued)

### Disaster Services.

**PALO ALTO CHAPTER, American Red Cross, [www.paarc.org](http://www.paarc.org)**

400 Mitchell Lane  
 Meets 3rd Wed. each month 7:30PM,  
 HF, packet, BBS, ATV, OSCAR Gateway, NASA satellite.  
 contact: Mac Millian 650-688-0423. [MACM@paarc.org](mailto:MACM@paarc.org)

**SAN JOSE CHAPTER, American Red Cross**

contact: Scott Hensley KB6UOO, (408) 967 7924, [FSHENSLEY@NOVELL.COM](mailto:FSHENSLEY@NOVELL.COM)

### VE Exams, 3rd Saturday each month, 10:30AM, 145.23 - PL=100Hz

Redwood City Main Library, Community Conference Room  
 1044 Middlefield Road, Redwood City, CA  
 contact: Al WB6IMX@att.net.

### Swap meet, LosPositas College, Livermore, 1st Sunday each month.

Contact: Cliff Kibbe (209) 835 6715 or Eliot Ross (925) 606 7710

(please send changes to PAARAgaphs editor: [k6uro@arrl.net](mailto:k6uro@arrl.net))

### Palo Alto Amateur Radio Association, Inc.

**PO Box 911**

**Menlo Park, CA 94026**

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 K6YQT Station Trustee..Gerry Tucker, N6NV.....(650) 326 4908  
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### Board of Directors

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[klibo@earthlink.net](mailto:klibo@earthlink.net)  
 Adrianus Schrauwen, W6AJS (650) 494 -6256 '04  
[hagenees@att.net](mailto:hagenees@att.net)  
 Ron Chester, W6AZ (650) 243 2221 appointment  
[ron@taxhelp.com](mailto:ron@taxhelp.com)

(see "Calendar" for Board meeting times, visitors welcome)

### PAARAgaphs Staff

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 Steve Brune KG6OUB, John Larribeau KR6MR, Wally Porter K6URO

**PAARAgaphs e-mail address: [k6uro@arrl.net](mailto:k6uro@arrl.net)**

Submit material for PAARAgaphs by the 15th  
 Use WORD, rich text, ascii, .pub, or .jpg, zip pictures as attachments.

**PAARA Website: [www.paara.org](http://www.paara.org)**

**PAARA Forum: <http://www.paara.org/forum/>**

## LIFE MEMBERSHIP

Awarded by Action of the PAARA Board

**Ron Panton, W6VG**  
**Leslie Vickery, W6AKR**

### PAARA WEB

Thanks to **Andreas Junge, N6NU**  
 and  
**Curt Kolovson, AE6EJ, Webmaster**  
 PAARA has a new web site. Check it out.  
**[www.paara.org](http://www.paara.org)**

## NEEDED!!

SOMEONE WITH  
COMMERCIAL ART OR LETTERING EXPERIENCE  
TO HELP IDENTIFY OUR TRAILERS AS  
'EMERGENCY COMMUNICATIONS SUPPORT' ETC.  
CONTACT: GERRY, N6NV  
650 326 4908

**F. Willard Griffith II**  
156 Burns Ave.  
Atherton CA 94027-3030

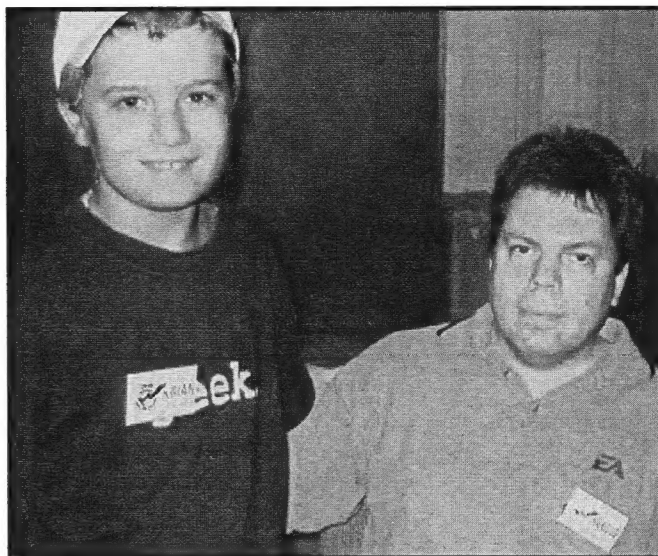
Tel: 650 322-4551 Fax: 650 327-0717  
Cell: 650 464-1532 E-mail: [bgriff1996@aol.com](mailto:bgriff1996@aol.com)

October 11, 2003

I have the following items for sale  
to the PAARA membership

Tektronix 545 Oscilloscope (Tubes) \$50  
AN/ARC 5 WWII Aircraft transmitter and dynamotor  
AM VHF \$100  
Vertical Military Antenna, telescoping, 20 to 114 Mhz motor driven,  
115VAC, unknown condition \$25  
2Ghz 6 ft. Dish antenna with satellite receiver TV Output \$50  
Motorola M-135 tube Aircraft receiver 108 to 131 Mhz. \$20  
Conference table 96" by 42" Formica wood grain \$100  
Pitney Bowes 6100 hi-speed mailing machine, seals envelopes  
and applies postage (not addressing) \$150  
Panasonic KX P2130 Dot Matrix Printer \$10  
Lots of other parts and goodies, real cheap

All items sold as-is with no guarantees.  
**Bill Griffith W9DDN**, email [bgriff1996@aol.com](mailto:bgriff1996@aol.com)  
Tel: 650-322-4551



## 2003 Pacificon News:

**Christopher McIntyre** age 11, passed his Technician License Examination after a long day at the Technician "cram course." This is a huge accomplishment for one of PAARA's favorite members. "Great job Christopher!" "Hams helping one another" was again demonstrated when Kb (KG6QQR) donated his new Pacificon prize of a Kenwood TH-G71A-HP, dual band H.T. to new Technician, Christopher. Mom (**Kristen K6WX**) is beaming. Don't you love Amateur Radio? Yessss!

**Ron Chester W6AZ** won the "Best Keyer Award" at Pacificon's Saturday evening QRP event. Ron's innovative and interesting combination of clipboard, log, keyer, and unique audio amplifier consisting of a blue funnel with plastic (pizza lid riser) speaker adapter, set him well above the fierce competition. "Yeaaaa Ron!"

PAARA member **KD6OCS Mikey**, won the  
"Pacificon Grand Prize Drawing"  
of an

Icom IC-706MkII HF/VHF transceiver with Power Supply.

It gets more interesting when you consider the fact that prior to the "Grand Prize Drawing", Mikey won a tool kit, his ticket was put back into the raffle drum, and then drawn out again to win the "Grand Prize"!

"I did indeed win the 706. The set of Craftsman pliers was actually won by my dad, Jeff AD6MX who is also a PAARA Member.

I was just holding on to his ticket my ticket only came out of the drum once right at the very end!", Mikey KD6OCS  
Hi Mikey,

~Jim, K6AK

Join us for pre-meeting eyeball

# QSO

# Nov 1st

**gab & gobble**

Food will be served at 6:00 sharp, so guests will be on time for the PAARA meeting. Those arriving late will be responsible for their own food order.

**6 pm— at Su Hong Restaurant**  
**1039 El Camino Real**  
**Menlo Park**

—across from Kepler's Book Store—



# New Licences

in PAARA area

David W Chamberlin, KG6SGP  
 1454 Ramon Dr  
 Sunnyvale, CA 94087-5834

James C Johnson, KG6SGW  
 1413 Ormsby Dr  
 Sunnyvale, CA 94087

Jeffrey R Glass, KG6SGX  
 1061 The Dalles Ave  
 Sunnyvale, CA 94087

Daniel J Ryan, Jr, KG6SGZ  
 2081 Cedar Ave  
 Menlo Park, CA 94025-5909

NICOLAS S GIKKAS, KG6SIW  
 1085 CLARK AVENUE  
 MOUNTAIN VIEW, CA 94040

Janice LCC Senior, KG6SKE  
 382 Foxborough Dr  
 Mountain View, CA 94041-1603

Katherine A Talbot, KG6SKH  
 600 Junipero Serra Blvd  
 Stanford, CA 94305

Harold A Jones, II, KG6SKI  
 475 Woodhams Rd  
 Santa Clara, CA 95051

John B Bley, KG6SKL  
 3061 La Selva C105  
 San Mateo, CA 94403

Shawn J Collier, KG6SKN  
 2868 Ponderosa Way  
 Santa Clara, CA 95051

John B Bley, KG6SKL  
 3061 La Selva C105  
 San Mateo, CA 94403

Shawn J Collier, KG6SKN  
 2868 Ponderosa Way  
 Santa Clara, CA 95051

JASON T WREDE, KG6SMF  
 PO BOX 390456  
 MOUNTAIN VIEW, CA 94039-0456

Lindsay M Jones, KG6SMR  
 1171 Shoreline Dr  
 San Mateo, CA 94404-2041

Hennadiy Rez, KG6SQT  
 1267 Vincente Dr Apt 142  
 Sunnyvale, CA 94086

JEFFREY E ALLEN, KG6STA  
 3529 LAGUNA CT  
 PALO ALTO, CA 94306

Andrew C Herkovic, KG6STC  
 165 Oakdale St  
 Redwood City, CA 94062-1736

Alfeo Caputo, KG6STL  
 651 Handley Trail  
 Redwood City, CA 94062

Silvano Borsa, KG6STP  
 651 Handley Trail  
 Redwood City, CA 94062

~Vic AB6SO





## Technical Tip

~Vic. Black, AB6SO

There has been a lot of interest in portable and back packing antennas since the February PAARA meeting demo of the self supporting Saint Louis Vertical Antenna (no guy wires needed). The antenna was designed by the St. Louis QRP Club and is based on a South Bend telescoping fiberglass fishing rod 20 feet long. It collapses to about 40" in length for easy portability. The original fishing rod was a South Bend model, but it is difficult to find.

An almost identical rod is the Black Widow distributed by Cabela's, a mail order outdoor equipment supplier. Several models are available and can be used either alone or in combination to make self supporting verticals or collapsible, rotatable dipoles for various bands. Here's a listing of the various models:

- 1). 10 foot model, closed length 45-1/4 inches, 3 sections, order number BH-11-0503, order code (010). Price: \$10.49.
- 2). 13 foot model, closed length 45-1/4 inches, 4 sections, order number BH-11-0503, order code (013). Price: \$13.99.
- 3). 16-1/2 foot model, closed length 45-1/4 inches, 5 sections, order number BH-11-0503, order code (165). Price: \$17.99.
- 4). 20 foot model, closed length 45-1/2 inches, 6 sections, order number BH-11-0503, order code (020). Price: \$21.99.

These can be ordered by Phone at 1-800-237-4444, 24 hours a day, 7 days a week or by 24 hour Fax Service at 1-800-496-6329. Mail orders can be sent to Cabela's, 812 13th Avenue, Sidney, NE 69160.

Charges for UPS Express Shipping within the continental US are:

- \$4.25 for orders of \$0 - \$15,
- \$6.25 for orders of \$15.01 - 35.00,
- \$7.25 for orders of \$35.01 - \$55.00,
- \$8.25 for orders of \$55.01 - \$75.00,
- \$9.25 for orders of \$75.01 - \$100.00.

UPS Next Day Air Shipping is also available for Phone orders only. You may want to combine orders with other club members to save on shipping charges (coordinate orders on the Monday night net). Cabela's has an excellent reputation for prompt fulfillment of orders. Run the numbers on the rods, add some PVC pipe and wires and see what kind of antennas you can design. Remember to bring them to show and tell if you come up something interesting.

~Vic, AB6SO

## Radio History and Radio Collections...

The Antique Wireless Association The Antique Wireless Association (AWA) is a nonprofit historical society founded in 1952 with about 4,000 members. The AWA publishes The Old Timer's Bulletin, a fabulous resource for those interested in the history of radio, television and other electronics, which is available through AWA membership.

Phil's Old Radios - Antique Radio Gallery This is a great site, with a gallery of photographs and pictures of radios in Phil Nelson's collection of Trans-Oceanic radios, Bakelite radios, Tube portables, Transistor Radios and more. The site has some radio restoration and building projects, including a nice one for a short-wave crystal radio. You also can place a free radio want ad on the "unclassified ads" page (the list of ads is long, so we suggest using the find function on your browser to find what you want).

Explore Jonathan Winter's Bellingham Antique Radio Museum online. This museum, located in Bellingham, Washington, is a must see if you're ever going to be visiting the Pacific Northwest. Here you will find old-time radio broadcasts, a crystal radio project (with a detailed introduction about crystal radio sets), images from the Bellingham radio collection, and technical information for radio collectors. Surfing the Aether is an interesting site with the history of radio from pre-1900 to the present, organized by decade. There are also some wonderful sound clips of radio broadcasts such as a report on the attack on Pearl Harbor, a live radio broadcast about the 1937 crash of the Hindenburg, and the panic-causing "Mercury Theater of the Air" by Orson Wells.

## Crystal Radio Links...

So you've built the Oatmeal Box Radio on this site, and you want to improve the design? Go to Owen Pool's site, Crystal Radio Resources for his Peanut Specials. Owen's site also has an extensive list of crystal radio links, tips on things such as bandspreading and DX, and plans for building a convertible crystal radio (you can swap in a simple "triode" detector/amplifier), an RF signal booster, and more. Owen is a Society member, and he's one of the resident experts lurking around on Rap 'n Tap, so be sure to give him a warm hello!

SkyWaves. This is Al Klase's site (he's a member too), and he has posted several pages of interest to the crystal radio enthusiast. You'll find "Crystal Set Design" 102, a crystal set tutorial, and some nice tips for mounting crystals to use in detectors. You'll also find photographs of some of Al's radio reproductions, some communication receivers and gear (the Russian maritime radio receiver is a must-see), and information on designing a SWL antenna distribution system for connecting multiple LF/MF/HF receivers to a single antenna.

There is a new forum on Yahoo! that is devoted to crystal radio. It's called The Crystal Set Radio Club, and it's members are true radio enthusiasts (some of them are members of the Xtal Set Society too). Check it out! ~Vic, AB6SO

## Attention Members and Visitors

### Raffle Prizes for the November 7<sup>th</sup> PAARA Meeting

**\*Note: 22 Radios are in the hands of fellow "Hams."**

Thanks to you and the PAARA Raffle!

**THANK YOU** for your continued **SUPPORT** of  
the PAARA Raffle!

The PAARA Raffle is **FULL** of **SURPRISES** and  
**YOUR LUCKY DAY** may be November 7<sup>th</sup>.

### THREE RADIOS +Two **FOURTH** place **PRIZES** **BONUS PRIZE**

Come try your hand at winning the

#### **FIRST PRIZE,**

Icom IC-2100H, 2 meter, 50W, Mobile (select green or amber display);

#### **SECOND PRIZE:**

Digital Camera, 2 Megapixel, 1.5" LCD screen, 2X Digital Zoom;

#### **THIRD PRIZE:**

**TWO, 14 channel FRS Personal Radios.**

Don't forget about the **TWO /**

**FOURTH** place raffle prizes plus a

**Bonus Prize** of a 1 year subscription to **WORLD RADIO**.

Enjoy our fabulous speakers, free refreshments, chatting with your friends, and the chance to **take home an unbelievable prize**. See you at Round Table after the meeting! Kyle and I are having a lot of fun.

**THANKS AGAIN FOR MAKING THE MEETINGS  
VERY EXCITING!**

\*(March 2003 – November 2003)

Contact Kyle, KG6MSK for tickets

~Jim, K6AK

## PAARA BADGES

*to order one, pay membership coordinator*

**Lisa Rice KG6KQS**

lisarice@earthlink.net

*next meeting pick up from*

**Don Trask KF6JMQ**

kf6jmq@arrl.net

*or contact at next PAARA meeting*

### Badge Cost Notice

the cost of PAARA badges will increase

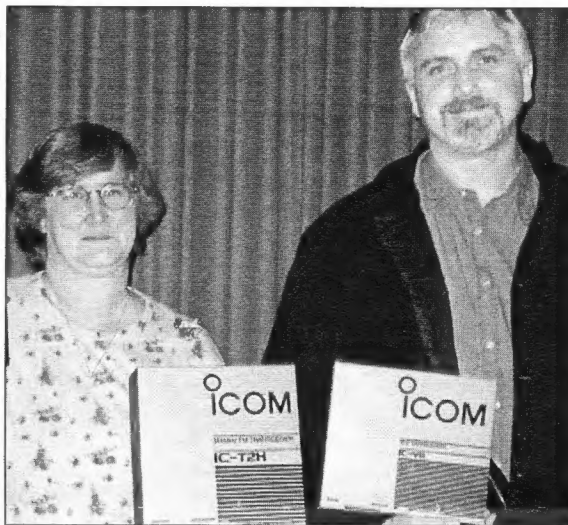
**\$10** will be charged

beginning November

## Congratulations:

### PAARA Raffle Prize Winners

**October 3<sup>rd</sup>**



#### 1<sup>st</sup> Prize: Mark Marriott WA6JIQ

Icom IC-V8

#### 2<sup>nd</sup> Prize: Lynn Gentry KG6JPV

Icom T2H / 2m / 6W / HT

#### 3<sup>rd</sup> Prize: Terry Finn AF6TF

Grundig FR-200 Emergency Radio

#### 4<sup>th</sup> Prize: Edward Gentry KG6KKP

General Class Book

#### 4<sup>th</sup> Prize: Kristen McIntyre K6WX

Gordon West CW Tapes

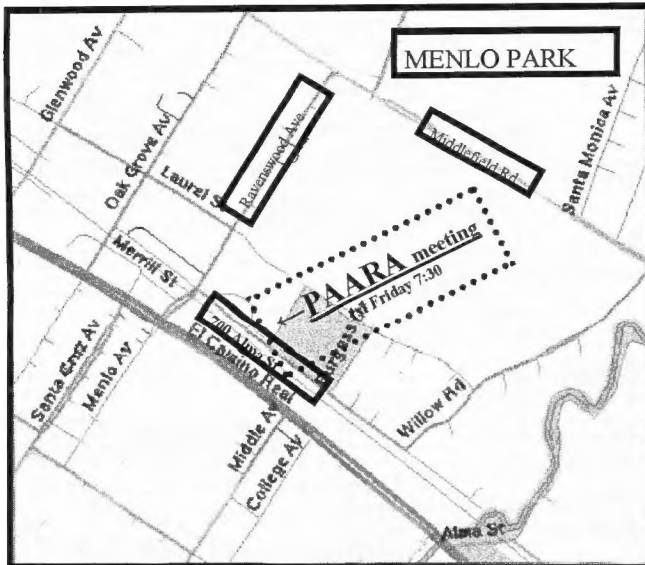
#### Bonus Prize: Edward Gentry KG6KKP



1 year subscription to **WORLD RADIO**

#### Bonus Prize: Joel Wilhite KA7TXV

1 year subscription to **WORLD RADIO**

~Jim, K6AK



**Ron Chester**  
 Santa Clara  
 (408) 243-2221  
 Ron@taxhelp.com


*Tax Preparation & QuickBooks Consulting - Ham discount*


**Want and For Sale ads in  
 PAARAgaphs**  
 are **FREE** to members  
*(Submit by e-mail or letter before the 15th of the month)*

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 Mailing: P.O. Box 189 • San Carlos, CA 94070-0189  
 Office: 234 Marshall Street, # 3 • Redwood City, CA

**PAARA Radio NET**  
 every Monday evening  
 8:30 P.M., local time  
 on the  
**145.230 -600 MHz repeater**  
*PL tone off*  
*control operators*  
**1st Mon KG6HΛ, Pinkney Foster**  
**2nd Mon N6NU, Andreas Junge**  
**3rd Mon AD6FX, Jon Zweig**  
**4th Mon AA6PA, Bill Rausch**  
**5th Mon tba**





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 (650) 969-1448  
 FAX: (408) 732-6428

**PAARAgaphs Ad Rates**

PAARAgaphs accepts paid advertisements from non-members.  
 (short personal ads remain free for members in good standing).  
 All ad rates listed are per issue only.

- Not for profit ads by association members for ham-related items and wants. No cost for business card size ads (additional space at \$2.50 per business card size).
- For Profit organizations and/or individuals: \$5-business card size, \$25-half page, \$50 full page or back cover.

These fees may be reduced or waived in exchange for a valuable consideration that is given to the Association or its general membership. Such consideration must be in addition to any existing arrangements with the association.  
 The PAARAgaphs editors reserve the right to reject any ad deemed to be not in the best interest of the Association. All fees payable in advance by the year with "scanner-ready" copy or text-only ads. Give payment and copy to Bob Korte

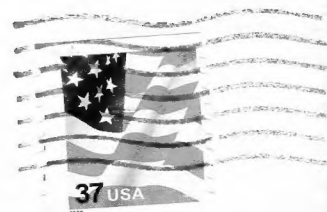
**PAARA • Palo Alto Amateur Radio Association • P.O. Box 911, Menlo Park, California 940260911**

- Club meetings are on the first Friday of each month, 7:30pm at the Menlo Park Recreation Center, 700 Alma Street, Menlo Park, CA.
- Radio NET every Monday evening, at 8:30pm, on the 145.230-600 MHz repeater, PL tone off.

Membership in PAARA is \$12.00 per calendar year which includes a subscription to PAARAgaphs, \$6 for additional family members (no newsletter).  
 Make payment to the Palo Alto Amateur Radio Association, P.O. Box 911, Menlo Park, CA 94026 -0911  
 Permission is granted to reprint from this publication with appropriate source credit.

# PAARAgaphs November 2003

Palo Alto Amateur Radio Association, Inc.  
PAARAgaphs Newsletter  
P.O. Box 911  
Menlo Park, California 94026



**FIRST CLASS MAIL**

**PAARA Website:**  
[www.paara.org](http://www.paara.org)

## PAARA Forum:

<http://www.paara.org/forum/>

Korsak, Andy KR6DD  
504 Lakemead Way  
Redwood City, CA 94062-3919

**12 STORE BUYING POWER**

**HAM RADIO OUTLET**  
WORLDWIDE DISTRIBUTION

**OAKLAND, CA**  
2210 Livingston St., 94606  
(510) 534-5757  
(800) 854-6046  
Mark, W7VY, Mgr.  
I-880 at 23rd Ave. ramp  
oakland@hamradio.com

**SUNNYVALE, CA**  
510 Lawrence Exp. #102  
94085  
(408) 736-9496  
(800) 854-6046  
Howard, KE6PWH, Mgr.  
So. from Hwy. 101  
sunnyvale@hamradio.com

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• HF Super DSP • Bluetooth™ DX jacket cluster  
• 1000 channels • 1000 memory  
• Low Price!

**TH-7A9G** 2W/440  
• 2W/440 Dual Band  
• 2000 Channels  
• 2000 Memory  
• 2000 Channels  
• 2000 Memory  
• 2000 Channels  
• 2000 Memory  
• Low Price!

**IC-706MKII** HF/VHF Transceiver  
• All mode HF/VHF Transceiver  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• Low Price!

**DL-196T** 2W/440  
• 2W/440 Dual Band  
• 2000 Channels  
• 2000 Memory  
• 2000 Channels  
• 2000 Memory  
• 2000 Channels  
• 2000 Memory  
• Low Price!

**ALINCO**

**DR-135T** 2W mobile  
• 2W mobile  
• 2W mobile  
• 2W mobile  
• 2W mobile  
• 2W mobile  
• 2W mobile  
• Low Price!

**IC-756 PRO II** All mode Transceiver  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• Low Price!

**FT-1000** HF/VHF/UHF Trans.  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• Low Price!

**FT-1000MP MKV** HF Trans.  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• 100W HF/50W VHF  
• Low Price!

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